

Calculations to Support Joint Affidavit for Motion for Summary Disposition of Contention CL-2

Table 1 – Monetized Impacts Using NUREG/BR-0184 Replacement Power Costs in 1993 Dollars

7% Discount Rate				
	ABWR with Severe Accident (ER Table 7.3-1)	Other ABWR (ER Table 7.5S-2)	STP Unit 1 (ER Table 7.5S-2)	STP Unit 2 (ER Table 7.5S-2)
Non-Replacement Power Costs	\$2,454	\$1,025	\$1,071	\$1,071
Replacement Power Costs	\$4,400	\$1,980	\$688	\$688
Unit Total	\$6,854	\$3,005	\$1,759	\$1,759
Site Total	\$13,377			
Sensitivity Analysis – 3% Discount Rate				
	ABWR with Severe Accident (ER Table 7.3-1)	Other ABWR (ER Table 7.5S-2)	STP Unit 1 (ER Table 7.5S-2)	STP Unit 2 (ER Table 7.5S-2)
Non-Replacement Power Costs	\$5,046	\$1,916	\$1,895	\$1,895
Replacement Power Costs	\$7,400	\$2,557	\$1,153	\$1,153
Unit Total	\$12,446	\$4,473	\$3,048	\$3,048
Site Total	\$23,015			

1.46 Multiplier for escalating from 1993 dollars to 2009 dollars
\$310,000 NUREG/BR-0184 daily replacement power cost for 980 MW unit
\$20.72 2009 market price using NUREG/BR-0184 values

Table 2 – Monetized Impacts Using NUREG/BR-0184 Replacement Power Costs Escalated to 2009 Dollars

7% Discount Rate				
	ABWR with Severe Accident (ER Table 7.3-1)	Other ABWR (ER Table 7.5S-2)	STP Unit 1 (ER Table 7.5S-2)	STP Unit 2 (ER Table 7.5S-2)
Non-Replacement Power Costs	\$2,454	\$1,025	\$1,071	\$1,071
Replacement Power Costs	\$6,424	\$2,891	\$1,004	\$1,004
Unit Total	\$8,878	\$3,916	\$2,075	\$2,075
Site Total	\$16,945			
Sensitivity Analysis – 3% Discount Rate				
	ABWR with Severe Accident (ER Table 7.3-1)	Other ABWR (ER Table 7.5S-2)	STP Unit 1 (ER Table 7.5S-2)	STP Unit 2 (ER Table 7.5S-2)
Non-Replacement Power Costs	\$5,046	\$1,916	\$1,895	\$1,895
Replacement Power Costs	\$10,804	\$3,733	\$1,683	\$1,683
Unit Total	\$15,850	\$5,649	\$3,578	\$3,578
Site Total	\$28,656			

\$34.76 2009 ERCOT average balancing market price (Houston Zone)
1.677327441 Multiplier to account for 2009 ERCOT pricing data (Houston Zone)

Table 3 – Monetized Impacts Using Replacement Power Costs Based on 2009 ERCOT Pricing Data (In 2009 Dollars)

7% Discount Rate				
	ABWR with Severe Accident (ER Table 7.3-1)	Other ABWR (ER Table 7.5S-2)	STP Unit 1 (ER Table 7.5S-2)	STP Unit 2 (ER Table 7.5S-2)
Non-Replacement Power Costs	\$2,454	\$1,025	\$1,071	\$1,071
Replacement Power Costs	\$10,775	\$4,849	\$1,685	\$1,685
Unit Total	\$13,229	\$5,874	\$2,756	\$2,756
Site Total	\$24,615			
Sensitivity Analysis – 3% Discount Rate				
	ABWR with Severe Accident (ER Table 7.3-1)	Other ABWR (ER Table 7.5S-2)	STP Unit 1 (ER Table 7.5S-2)	STP Unit 2 (ER Table 7.5S-2)
Non-Replacement Power Costs	\$5,046	\$1,916	\$1,895	\$1,895
Replacement Power Costs	\$18,122	\$6,262	\$2,824	\$2,824
Unit Total	\$23,168	\$8,178	\$4,719	\$4,719
Site Total	\$40,783			

\$82.95 2008 ERCOT average balancing market price (Houston Zone)
4.002713213 Multiplier to account for 2008 ERCOT pricing data (Houston Zone)

Table 4 – Monetized Impacts Using Replacement Power Costs Based on the Highest Historical Annual ERCOT Pricing Data from 2008 (In 2009 dollars)

7% Discount Rate				
	ABWR with Severe Accident (ER Table 7.3-1)	Other ABWR (ER Table 7.5S-2)	STP Unit 1 (ER Table 7.5S-2)	STP Unit 2 (ER Table 7.5S-2)
Non-Replacement Power Costs	\$2,454	\$1,025	\$1,071	\$1,071
Replacement Power Costs	\$25,713	\$11,571	\$4,021	\$4,021
Unit Total	\$28,167	\$12,596	\$5,092	\$5,092
Site Total	\$50,947			
Sensitivity Analysis – 3% Discount Rate				
	ABWR with Severe Accident (ER Table 7.3-1)	Other ABWR (ER Table 7.5S-2)	STP Unit 1 (ER Table 7.5S-2)	STP Unit 2 (ER Table 7.5S-2)
Non-Replacement Power Costs	\$5,046	\$1,916	\$1,895	\$1,895
Replacement Power Costs	\$43,245	\$14,943	\$6,738	\$6,738
Unit Total	\$48,291	\$16,859	\$8,633	\$8,633
Site Total	\$82,416			

3.8 Multiplier from the Johnson Report

Table 5 --Monetized Impacts Using Replacement Power Costs Based on the Johnson Report (in 2008 dollars)

7% Discount Rate				
	ABWR with Severe Accident (ER Table 7.3-1)	Other ABWR (ER Table 7.5S-2)	STP Unit 1 (ER Table 7.5S-2)	STP Unit 2 (ER Table 7.5S-2)
Non-Replacement Power Costs	\$2,454	\$1,025	\$1,071	\$1,071
Replacement Power Costs	\$16,720	\$7,524	\$2,614	\$2,614
Unit Total	\$19,174	\$8,549	\$3,685	\$3,685
Site Total	\$35,094			
Sensitivity Analysis -- 3% Discount Rate				
	ABWR with Severe Accident (ER Table 7.3-1)	Other ABWR (ER Table 7.5S-2)	STP Unit 1 (ER Table 7.5S-2)	STP Unit 2 (ER Table 7.5S-2)
Non-Replacement Power Costs	\$5,046	\$1,916	\$1,895	\$1,895
Replacement Power Costs	\$28,120	\$9,717	\$4,381	\$4,381
Unit Total	\$33,166	\$11,633	\$6,276	\$6,276
Site Total	\$57,351			

\$1.80 Price increase due to market effects from dispatch model
 \$84.75 Price with 2008 ERCOT pricing data and market effects
 4.089571365 Multiplier to account for 2008 ERCOT pricing data and market effects

Table 6 -- Monetized Impacts Using Replacement Power Costs Based on 2008 ERCOT Pricing Data and Accounting for Market Effects

7% Discount Rate				
	ABWR with Severe Accident (ER Table 7.3-1)	Other ABWR (ER Table 7.5S-2)	STP Unit 1 (ER Table 7.5S-2)	STP Unit 2 (ER Table 7.5S-2)
Non-Replacement Power Costs	\$2,454	\$1,025	\$1,071	\$1,071
Replacement Power Costs	\$26,271	\$11,822	\$4,108	\$4,108
Unit Total	\$28,725	\$12,847	\$5,179	\$5,179
Site Total	\$51,930			
Sensitivity Analysis -- 3% Discount Rate				
	ABWR with Severe Accident (ER Table 7.3-1)	Other ABWR (ER Table 7.5S-2)	STP Unit 1 (ER Table 7.5S-2)	STP Unit 2 (ER Table 7.5S-2)
Non-Replacement Power Costs	\$5,046	\$1,916	\$1,895	\$1,895
Replacement Power Costs	\$44,184	\$15,267	\$6,884	\$6,884
Unit Total	\$49,230	\$17,183	\$8,779	\$8,779
Site Total	\$83,972			

Consumer Impacts of Market Effects

307491044 MWh total in ERCOT in 2009
 1.56E-07 per year Core Damage Frequency
 \$553,483,879.20 Economic impact of increased market price
 \$86.34 per year economic impact with probability
 40 life of plant (years)
 6 duration of impact (years)
 \$20,722.44 Consumer impact of market effects
 \$71,669.20 Price with 2008 ERCOT pricing data and consumer impacts from market effects (7% discount rate)
 \$103,138.93 Price with 2008 ERCOT pricing data and consumer impacts from market effects (3% discount rate)

Consumer Impacts of Price Spikes

0.2 Multiplier for price increase due to price spikes
 \$16.59 20% price increase
 \$5,101,276,419.96 Economic impact of price spikes
 \$795.80 Economic impact of price spikes with probability
 \$31,831.96 Consumer impact of price spikes
 \$103,501.17 Price with 2008 ERCOT pricing data, consumer impacts from market effects, and consumer impacts from price spikes (7% discount rate)
 \$134,970.90 Price with 2008 ERCOT pricing data, consumer impacts from market effects, and consumer impacts from price spikes (3% discount rate)

Grid Outages

\$10,000,000,000 Assumed economic impact from grid outage equivalent to 2003 Northeast blackout
 0.1 Likelihood that a grid outage would occur following a severe accident
 \$156.00 Economic impact of grid outages with probability
 \$6,240.00 Economic impact of grid outages
 \$109,741.17 Price with 2008 ERCOT pricing data, consumer impacts from market effects, consumer impacts from price spikes, and grid outages (7% discount rate)
 \$141,210.90 Price with 2008 ERCOT pricing data, consumer impacts from market effects, consumer impacts from price spikes, and grid outages (3% discount rate)